BOWDITCH (V.Y.)

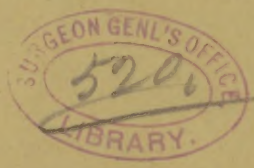
THE EFFECT OF CHANGE OF POSTURE UPON HEART MURMURS.

Read at the Annual Meeting of the American Climatological Association, at Richfield Springs, New York, June 24, 1892.

BY

VINCENT Y. BOWDITCH, M.D.,

Boston, Massachusetts.



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THE EFFECT OF CHANGE OF POSTURE UPON HEART MURMURS.

In presenting to you a number of cases in which I have noticed in the last three years some rather peculiar phenomena in cardiac murmurs, I cannot, perhaps, give you anything especially original either in the way of observation or explanation of the facts, yet, as I have been unable to find special references to them in medical books, I have thought it worth while to see if others here had had experiences similar to mine, and to learn what, if any, deductions had been made from your observations.

I refer to the change which comes under certain conditions in the character and intensity of the abnormal sounds in a certain number of cases, by no means all, of cardiac disease, whether functional or organic in origin. By this I do not refer to the fact known to every beginner in the practice of medicine that exertion will often bring out a murmur which disappears again during rest, but that a change of the patient from a sitting to a lying position, or the reverse, will quite frequently cause a marked difference in the character of the adventitious sounds conveyed to the ear, a fact often noticed after repeated experiments at one examination of the patient.

I have been struck chiefly by the following facts, viz.,—that systolic murmurs heard at the base of the heart are, in most cases, where any difference is noticed at all by change of position, intensified when the patient is lying down, although the reverse is true also at times.

Again, although I am inclined to believe that the former condition occurs chiefly in cases where the murmur is inorganic (anæmic cases), yet I have undoubtedly noticed it in others where all the symptoms of organic disease are present.

Less frequently, a difference in character of basic diastolic murmurs has been noticed by change of position, some cases showing greater intensity when the patient lies down; about an equal number showing the reverse. The same may be said of murmurs at the apex of the heart.

One special moment is the fact that in a few cases a change of position will cause the disappearance or reappearance of a murmur. The most striking case of this was in a woman whom I examined very carefully in the out-patient department of the City Hospital at different times. There

was a history of three attacks of inflammatory rheumatism with subsequent symptoms of cardiac disease (præcordial pain, palpitation, etc.).

Upon examination, whenever the patient lay down, a basic systolic murmur was heard, which completely disappeared when she rose to a sitting position. On the contrary, however, a præsystolic murmur at the apex, distinctly and loudly heard when the patient was sitting up, became very faint and at times completely disappeared upon her resuming a horizontal position, these facts appearing each time the experiment was made, and corroborated by three assistants who, without being biassed by any remark from me, noticed the same phenomena. I saw this patient three times at short intervals, the same facts being noticed each time, although at the last examination after treatment the difference in the change of the apex-murmur was not as marked as on the earlier occasions.

From forty-two cases which I have examined with special reference to the point in question, I find the following results:

Twenty-one showed an increased intensity of murmur when the patient was lying down.

Of these, 9 were murmurs at the base.
" " 8 " " " " apex.
" " 2 " " both in base and apex.
" " 2 could not be located absolutely.

Five showed increased intensity of murmur when the patient was sitting up.

Of these, 2 were murmurs at the apex.
" " 3 could not be located, but were more or less diffused.

Sixteen showed no special difference in the murmurs upon change of position.

Of these, 6 were murmurs at the base.
" " 9 " " " " apex.
" " 1 could not be located.

Since beginning my paper I have been much interested in reading in the New York *Medical Record* of June 11 a brief résumé of a paper bearing on this subject by Dr. O. B. Campbell, of Ovid, Michigan, read before the American Medical Association, in which he reaches much the same conclusions that I have. I have been given to understand also that Dr. Loomis made some remarks on the same subject at the last Congress of American Physicians and Surgeons; but I have been unable to find a report of his remarks, and trust we may have the benefit of his experience in the discussion to-day.

Out of one hundred cases examined by Dr. Campbell the murmur became more distinct in the recumbent position in seventy-eight, more distinct in the upright position in six, unaffected by change of position in twelve, not heard standing but developed by lying down in four.

It would seem, therefore, that there is no definite law by which we can determine which position affects these changes most. The fact remains, however, that the murmurs are frequently affected in character by change of position, and this once noticed may lead to something more definite in the future.

It is easy to theorize as to the cause of these changes, and in the case which I have quoted as especially striking, the theory which had seemed a plausible one to me would seem to have been corroborated, viz., that when the patient is in a supine position, the heart by gravity tends to fall backwards towards the spine, thus causing the great vessels as they emerge from the heart to bend upon themselves, thus making an increased obstruction to the flow of blood and an intensified systolic murmur at the base. On the other hand, the præsystolic mitral murmur is less distinct to the ear by the falling away of the heart from the chest-wall when the patient is lying down, and intensified as the heart comes forward again upon the patient's rising.

Unfortunately for the truth of this theory, however, cases occur in which the exact opposite of the above conditions are found, and we are, therefore, obliged to look for some other explanation of the facts noticed. The theory that the difference in the sounds may be attributed, after all, to exertion on the part of the patient can, I think, be safely put aside, for in nearly every case I have made the patient change the position at least five or six times in each single examination.

In either position an equal amount of exertion is used, whether the patient lifts himself up to a sitting posture (the legs being extended in the bed), or lets himself slowly back into a reclining position ; hence my reasons for attributing these changes of sound to some other cause than exertion alone.

Of course, it cannot be claimed that practical results in the treatment of cardiac disease are obtained thus far by such observations, yet every recorded fact in medicine, however small, has its own worth, and will prove a help, whether directly or otherwise, in the future to our knowledge of disease.

One thing certainly can be claimed, and it is of importance, that certain abnormal conditions of the heart have at times been brought out which would have remained hidden had not the methods of examination as suggested been adopted.

In the case quoted, for example, had the patient been examined in a recumbent position solely, the presence of a mitral stenosis might easily have passed unnoticed. So much have I been impressed by these facts since I first noticed them, that although in many patients nothing of importance is detected by mere change of position, yet I do not now feel that I have done thorough justice to any doubtful case of cardiac disease unless I have examined the patient in both attitudes.

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Instructor in Clinical Medicine, and Lecturer on Physical Diagnosis and Symptomatology in the University of Pennsylvania; Assistant Physician to the University Hospital.

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